

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (~~Currently Amended~~Original) A method for extracting a component from a heap of material, the method comprising:

after the heap has been subjected to component extraction by heap leaching for some period of time, surveying the heap, the surveying comprising collecting data concerning properties within the heap and analyzing the data to identify portions of the heap deficient in extraction of the component in that the extraction of the component in the identified portions of the heap is low in comparison to average extraction of the component from the heap; and
subjecting the heap to selective remedial treatment, the selective remedial treatment comprising excavating a well into;

based on the surveying, selecting for remedial treatment an identified portion of the heap determined from the surveying to be deficient in extraction of the component in that the extraction of the component in the identified portion is low in comparison to average extraction of the component from the heap;

excavating a well into the identified portion of the heap; and
through the well, remedially treating the identified portion of the heap to improve the extraction of the component from the identified portion of the heap.

2. (Original) The method of Claim 1, wherein the remedially treating the well comprises treating the identified portion of the heap, the treating comprising introducing treating solution through the well into the identified portion of the heap and dissolving into the treating solution at least a portion of the component from the identified portion of the heap.

3. (~~Currently Amended~~Original) The method of Claim 2, wherein the well is in completed for fluid communication with the heap in multiple zones in the well; and
the method comprises performing the treating separately on each of the zones.

4. (Original) The method of Claim 2, wherein the remedially treating the well comprises prior to the treating, hydraulic fracturing the heap within the identified portion of the

heap.

5. (Original) The method of Claim 4, wherein the hydraulic fracturing comprises:
fluidly isolating a zone in the well in fluid communication with the heap;
initiating a fracture through injection under pressure of a fracture fluid into the heap at a
location corresponding with the zone; and
propping the fracture open through deposition in the fracture of proppant particles
transported through the well.

6. (~~Currently Amended~~~~Previously Presented~~) The ~~method of method~~ Claim 4,
wherein the well is ~~in completed~~ for fluid communication with the heap in multiple said zones in
the well; and
the method comprises performing the hydraulic fracturing separately on each of the
zones.

7. (Original) The method of Claim 6, comprising performing the treating separately
on each of the zones.

8. (Previously Presented) The method of Claim 2, wherein the treating is performed
without prior hydraulic fracturing of the identified portion of the heap.

9. (Previously Presented) The method of Claim 4, comprising collecting from the
heap at least a portion of the treating solution containing dissolved component extracted from the
heap and removing from the collected treating solution at least a portion of the dissolved
component.

10. (Previously Presented) The method of Claim 4, comprising, after the treating,
rinsing the identified portion of the heap, the rinsing comprising introducing rinse solution
through the well into the identified portion of the heap to displace at least a portion of the treating
solution containing dissolved component away from the identified portion of the heap.

11. (Original) The method of Claim 10, wherein:
the rinsing comprises dissolving at least a further portion of the component from the
identified portion of the heap into the rinse solution; and

after the rinsing, collecting from the heap at least a portion of the rinse solution and removing from the collected rinse solution at least a portion of the further portion of the component.

12. (~~Currently Amended~~~~Previously Presented~~) The method of Claim 10, comprising further subjecting the heap to component extraction by performing the heap leaching during at least a portion of the rinsing.

13. (~~Currently Amended~~~~Previously Presented~~) The method of Claim 4, comprising further subjecting the heap to component extraction by performing the heap leaching during at least a portion of the treating.

14. (Previously Presented) The method of Claim 4, wherein the component is gold and the treating solution comprises a lixiviant for the gold.

15-18. (Cancelled).

19. (~~Currently Amended~~~~Previously Presented~~) The method of ~~Claim 4~~~~a Claim 4~~, wherein the component is a base metal.

20. (Original) The method of Claim 19, wherein the base metal is selected from the group consisting of copper, nickel, zinc, lead, cobalt and iron.

21. (Original) The method of Claim 19, wherein the base metal is copper and the treating solution is an acidic sulfate solution.

22. (Previously Presented) The method of Claim 4, comprising:
sampling the heap during the excavating of the well; and
analyzing at least one property of a sample of the material obtained during the sampling.

23. (Original) The method of Claim 22, wherein:
the sampling comprises obtaining multiple said samples from different depths in the heap, different ones of said multiple samples obtained from different depths in the heap; and
performing the analyzing separately on each of the ones of the samples obtained from different depths.

24. (Previously Presented) The method of Claim 4, wherein the surveying comprises forming test holes into different portions of the heap and determining a property of the heap at different lateral locations and different depths in the heap.

25. (~~Currently Amended~~Previously Presented) The method of ~~Claim 4~~~~aClaim 4~~, wherein the surveying comprises a noninvasive data collection technique to determine a property of the heap at different locations in the heap.

26. (Original) The method of Claim 25, wherein the noninvasive data collection technique comprises a geophysical survey.

27. (Original) The method of Claim 26, wherein the geophysical survey comprises a passive geophysical survey technique.

28. (Original) The method of Claim 27, wherein the geophysical survey comprises a gravity survey.

29. (Original) The method of Claim 27, wherein the geophysical survey comprises a magnetic survey.

30. (Cancelled).

31. (Previously Presented) The method of Claim 4, wherein the material comprises at least one of an ore and an ore concentrate.

32. (Previously Presented) The method of Claim 4, wherein the heap has a depth of at least 300 feet.

33. (Cancelled).

34. (Previously Presented) The method of Claim 4 wherein the material comprises a metal-containing mineral material and the component is a metal.

35. (Original) The method of Claim 34, wherein the metal is gold and the heap leaching comprises applying a leaching solution to the heap, the leaching solution comprising a lixiviant for the gold.

36-39. (Cancelled).

40. (Original) The method of Claim 34, wherein the metal is a base metal.

41. (Original) The method of Claim 40, wherein the base metal is copper.

42. (Original) The method of Claim 40, wherein the base metal comprises one or more than one of nickel, zinc, lead, cobalt and iron.

43. (Original) The method of Claim 34, wherein the metal is uranium.

44. (Original) The method of Claim 34, wherein the metal is sodium.

45. (~~Currently Amended~~Original) The method of Claim 34, wherein the metal is ~~phosphorus~~phosphorus.

46. (Original) The method of Claim 34, wherein the metal is silver.

47. (Cancelled).

48. (Previously Presented) The method of Claim 4, wherein the remedially treating comprises modifying pH in the identified portion of the heap.

49-50. (Cancelled).

51. (Previously Presented) The method of Claim 4, comprising excavating a plurality of the wells into a plurality of identified portions of the heap and performing the remedially treating separately through different ones of the wells.

52. (Previously Presented) The method of Claim 4, comprising prior to the remedially treating, performing the heap leaching.

53. (~~Currently Amended~~Original) The method of Claim 52, comprising further ~~subjecting the heap to component extraction by performing the heap leaching during at least a~~ portion of the remedially treating.

54. (~~Currently Amended~~Previously Presented) The method of Claim 53, comprising

Applic. No. 10/591,052
Reply to Office Action of October 17, 2008

further subjecting the heap to component extraction by performing the heap leaching after the remedially treating.